



How social and economic conditions impact socioeconomic mobility. The case of Spain

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ABSTRACT

We rely on Permanent Income to define a socioeconomic stratification system based on a latent trait measurement model using objective and widely available socioeconomic variables as reflective indicators, with an official panel of households spanning 2006–2020 in Spain. We obtain an objective and transparent stratification of Spanish society for these 15 years, and track social mobility at the household level between consecutive years that included economic expansion, a major recession, economic recovery and a major pandemic. We have quantified social mobility (greater in the extreme strata) in each of the periods of growth, crisis and economic recovery. Crisis derived from COVID-19 has been more drastic and has affected more the consumption of households under 65 years of age or with few members. In Spain, measures adopted against the effects of the COVID crisis have generated less inequality than those adopted during the Big Recession of 2008.

1. Introduction

The main objective of this manuscript is to examine whether and how economic and social disruptions affect socioeconomic (in)mobility patterns and trends. Previous literature has not sufficiently addressed this important issue, nor has it gone into the detail of objectively quantifying transfers between classes or strata. Social mobility has been studied from different points of view, focusing on specific countries or groups or in relation to specific aspects such as education, age, or occupation (Breiger, 1981; Snipp, 1985; Gil-Hernández et al., 2017; Westhoff et al., 2022).

There are even fewer studies that quantify mobility between socioeconomic strata based on an objective, data driven definition of socioeconomic strata, with a sufficiently long time-horizon to study the impact of multiple socio-economic disruptions on social mobility. In the first two decades of the 21st century social mobility has been affected by several major influences such as technological innovation (e.g, the development of the Internet and digital communications), the economic crises of 2008 (Del Barrio-García et al., 2019) and, more recently, the Covid-19 pandemic (Anundsen et al., 2023; Gamber et al., 2023).

This concern for socioeconomic mobility in crisis situations is very present in the current social and political agenda across the globe (eg. Rothwell, 2021; Geddes, 2022; Heckman & Mosso, 2014; Koos,

Vihalemm, & Keller, 2017; Mare, 2014; Zavras, Tsiantou, Pavi, Mylona, & Kyriopoulos, 2013; Marriott, 2022). For example, in Spain the response to the “Big Recession” of 2008 had two phases. The first, in charge of a government of the socialist party, consisted of an economic activation plan focused primarily on public investment (Plan E) and an austerity plan with a salary freeze and reduction of public employment. The second part, starting in 2011, basically consisted of labour reform, cutback measures on social policies and in the public sector (companies and positions), especially in health and education. In the case of the Covid pandemic, the measures adopted by the Spanish Government focused on protecting workers with unemployment benefits, or for those who could not return to work, a moratorium on leases for families. Businesses, on the other hand, received lines of guarantees from the Official Credit Institute for financing SMEs and the self-employed; fiscal measures; extension of the application of the Temporary Employment Regulation Files (ERTE); promotion of remote work, among others.

Our work aims to analyse and understand the effects produced by the last two social and economic crises (financial crisis of 2008 and Covid-19 crisis) on social mobility among different socioeconomic strata in one of the main European economies (Spain). More specifically, we attempt to address the gap that exists in the literature about the way in which the different socioeconomic strata expand or retract in different pre- and post-crisis scenarios: a phase of economic growth (2006–2008), an

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economic crisis with a financial component (2008–2013), a recovery phase (2013–2019) and an economic crisis associated with a major pandemic (2020).

To do so, we use the concept of Permanent Income (PI), which reflects the ability of the household to maintain a certain standard of living (Friedman, 1957), as the basis for our socioeconomic stratification. To study how social mobility was affected by socioeconomic shifts during the dynamic beginning of the 21st century in Spain (with fast economic growth followed by a major recession, a relatively fast recovery, and a major pandemic), we use a concatenation of 15 “Encuestas de Presupuesto Familiar” surveys conducted by the “Instituto Nacional de Estadística” (Spanish National Statistics Institute’s household budget survey - INE-EPF) from 2006 to 2020. This 15-year series of surveys present a valuable feature for our study, because about half of the households participating each year also participated in the subsequent year, allowing us to directly understand the dynamics of social mobility at the household level.

To achieve this objective, this article proceeds as follows. First, we measure the increase/decrease in Permanent Income from one year to the next year, for each Spanish household in the 2006–2020 sample. These measurements of Permanent Income are the basis for defining socioeconomic classes in Spain for the entire 15-year period; we use this socioeconomic stratification, consistent across the entire sampling period, to study the social mobility each household from one year to the next, and to understand how the economic environment and the Covid pandemic affected the social mobility of these households at different stages of the family lifecycle.

This work contributes to the literature by developing a theoretical model to measure social mobility based on PI according to the socioeconomic characteristics of households over time, including periods of growth and crisis with different origins. In short, we are able to detect shifts up and down the strata in consecutive years and to empirically verify social mobility (upwards and downwards) at the household level in Spain in the first two decades of the 21st century.

2. A brief review of the literature on social mobility

Any attempt to study social mobility must first wrestle with the definition of socio-economic status and with the tools for classifying individual households into the social strata. In this section, we review how these critical issues have been addressed in the literature, and how social mobility has been studied in the past.

2.1. Social class and socioeconomic status

Regarding the concept of social class, Marx characterized the class structure in two large groups according to the possession of the means of production or work. Weber’s social stratification goes beyond Marx’s approach by pointing out three determining factors: economic position, prestige or reputation due to status, and power held. From these classic delimitations of social class, other attempts to deepen its conceptual delimitation arise. Wright (2005) started from the classic division of Marx to identify twelve occupations that typify the social classes within a society. On the other hand, Goldthorpe et al. (1987) adapted Weber’s classification of social classes, arriving at seven classes based on market and work conditions. Other more recent authors such as Bourdieu (1991) point out the social space occupied determined by economic, cultural, social capital and prestige as elements to divide society into social classes.

In short, social class is a controversial concept that has been approached in the literature from different perspectives such as anthropological (Goldschmidt, 1950), the means of production (Lindsey, 1980), sociological (Bourdieu, 1991; Hout et al., 1993) or consumption/consumer behaviour (Martineau, 1958; Coleman, 1960, 1983; Schaninger, 1981; Gilbert, Gilbert, & Kahl, 1982; Bigné Alcañiz & Aldás Manzano, 2000; Wedel & Kamakura, 2002; Kamakura & Yuxing

Du, 2012; Kamakura & Mazzon, 2013).

A more pragmatic approach to social stratification is based on socioeconomic status, measured either through objective indicators such as income, education, occupation, and the possession of assets and capital, or more subjectively as the perception of individuals and families about their ability to achieve or maintain a certain status (Ganzeboom et al., 1992; Vaughan-Whitehead, 2016; Oesch & Vigna, 2023).

The most common criterion used to define socioeconomic status has been income, with different proposals emerging over the years to delimit the different strata using this criterion (Vaughan-Whitehead, 2016; Barone et al., 2022). One of the best known is the classification by the OECD in 2008, delimiting the ‘middle-income group’ as the distribution of real income in the middle three quintiles of current income. Nonetheless, according to Derndorfer and Kranzinger (2021) the literature seems to converge to a definition of the middle-class between 75% and 125% of the median income.

In addition to income, other criteria widely considered by authors to stratify the population have been wealth, capital and their evolution over time. The assumption here is that both aspects can help individuals from the middle and upper strata maintain their status by resorting to savings and assets, even though their income may occasionally be affected, for example in an economic crisis (Nolan et al., 2014).

The level of education and occupation of individuals have also been factors taken into account when identifying socioeconomic strata, especially in Europe (Bihagen et al., 2010; Gil-Hernández et al., 2017). Likewise, there have been some attempts to carry out social stratification by combining some of these criteria, such as the International Socio-economic Index, which combines education, occupation and income as a measure of socioeconomic status (Ganzeboom et al., 1992; Hauser & Warren, 1997; Bihagen & Lambert, 2018).

However, socioeconomic stratification based on the indicators mentioned above is not without limitations. For example, the educational level of modern societies is not defined only by access to the different levels of education, but also depends on the quality of the education received (Taylor & Cantwell, 2019) and by informal training in “unofficial” processes, such as experience attained throughout life or at work. Likewise, the delimitation of social strata based on the occupation of the subject also presents important problems in modern societies, related to stability and differences between countries. There are certain occupations that were traditionally considered as belonging to the middle and upper socioeconomic strata and that in many cases are disappearing as a consequence of the polarization of employment (Goos et al., 2009; Bihagen & Lambert, 2018).

The measurement of household resources such as wealth, income or welfare has been controversial in the past (Brady, 2022). A consensus for its measurement was recently institutionalized in the Luxembourg Income Study (Gornick & Smeeding, 2018; Brady, 2022) which proposed to include all sources of income for all household members, with rates and transfer, adjusted for size and observed at different points in time. Böhlmark and Lindquist (2006) argue that there are “...strong life-cycle patterns. This implies that the widespread use of current income as a proxy for lifetime income results in inconsistent parameter estimates (i. e., life-cycle bias), even when the proxy is used as the dependent variable”.

2.2. Permanent Income (PI) and its measurement

In our empirical work, we chose to study the socio-economic stratification of the population and mobility between strata using the Permanent Income (PI) construct, because a household’s standard of living is better measured by PI than by current disposable income alone (Friedman, 1957). As discussed above, current income by itself may be misleading about a household’s socioeconomic status at a given time, because it does not take into account other resources available to the household from public services and from social and economic capital accumulated over the years. In contrast, Permanent Income takes into

account the household's history when contemplating the household's ability to maintain a certain standard of living.

However, as a conceptual construct, there is no directly observable measure of Permanent Income; it must be considered as a latent variable and measured as such, via observable indicators such as education and occupation, financial and physical assets and, of course, current income. From a theoretical perspective it is plausible to consider current income, occupation and education as builders of Permanent Income (Bollen et al., 2007), or as formative indicators in a measurement model. But this formative measurement approach has some methodological drawbacks. For example, education qualifies the worker for certain occupations, and therefore these two indicators are highly collinear. Moreover, both variables condition the current income, leading to more collinearity, among these three indicators. This strong collinearity precludes the use of these variables as formative indicators in a measurement model.

Aside from the collinearity problem, the consumer's stage on the family lifecycle means that the same current income has very different effects on the standards of living, depending on the characteristics of the household, past circumstances, number of members, equipment, and other characteristics. Therefore, it is necessary to consider family composition and stage on the family lifecycle as covariates interacting with the observable indicators of Permanent Income. The need to include interactive covariates in the measurement model is another factor precluding the formulation of the measurement model with formative indicators, leading to use only reflective indicators as we show later.

Another major advantage of using a latent-variables formulation with reflexive indicators to measure Permanent Income is the robustness of this formulation to missing values, as demonstrated by Wedel and Kamakura (2001)¹

2.3. Socio-economic strata and mobility

Society is structured in socio-economic strata or social classes that are fairly stable over time, although individual households might move across classes due to social and economic shifts.

Despite the general belief that all people have equal opportunities based on the idea of high mobility between classes, some authors (Goldschmidt, 1950) argue that the majority remain in the economic and social status into which they were born. If a country or region shows greater mobility, it implies that there are more opportunities, more expectations of improving status (Watkins et al., 2018). This mobility can be facilitated by the context and the possibilities created by social networks and relationships (Jackson, 2019; McArlé, 2022) and by education, which can constitute a true social lift (Friedman, 2022).

In general, the literature recognises a dual perspective when it comes to inequality and social mobility, that of sociologists and that of economists. From a sociological perspective, Bourdieu (1991) speaks of a social space where the agents are defined by their position in said space for the different fields (economic, cultural, social or prestige capital). Thus, socio-economic strata are understood as a set of agents occupying similar positions who, placed in similar conditions and subjected to similar conditioning, are likely to have similar dispositions and interests, and similar consumption behaviours. This idea is supported by Reay (2005), who postulates the existence of a psychic economy of social classes, that conditions our activities, feelings and existence.

For sociologists, social class is a good proxy for log earnings (Kim et al. (2018). According to Erikson et al. (1979), social position is derived from social relations in the labour market, not only earnings, but

also security, stability and earnings prospects. Shahbazian and Bihagen (2022) show that occupation measures are better than education measures, that occupation-based measures are more stable than annual earnings, but overall less valid as indicators of lifetime earnings compared to annual earnings.

As for the economists's perspective, Brady et al. (2018) use various household and individual-based measures of economic resources as proxies for Permanent Income (Friedman, 1957), highlighting that one year of HH income after tax predicts Permanent Income even better than 20+ years of individual labour market earnings or long-term net worth. Brady (2022) finds that current income outperforms wealth and outperforms occupation or other measures of social class. Haider and Solon (2006) warn of possible biases in the measurement of intergenerational income mobility by analysing the relationship between current and lifetime earnings and demonstrating the implications of error-in-variables bias in applied econometric research. On the other hand, Kim et al. (2018) demonstrate the predictive power of various proxy variables, including occupation, education and short-term earnings, on cumulative earnings over the 20-year period. They argue that cross-sectional earnings have greater predictive power for long-term earnings than occupation-based class classifications, including three-digit detailed occupations for both men and women.

There are also authors who reconcile the two perspectives discussed above in a more eclectic view. For example, Hauser and Warren (1997) construct new indicators of socio-economic status based on workers' education and income; Bihagen and Lambert (2018) provide evidence that stratum or social class is associated with income; Albertini (2013) examines the relationship between social class and earnings and income inequality, as well as changes over the last three decades in Italy among different groups of professionals and workers; Kim et al. (2018) also use variables of both types.

For all these reasons, it seems wise to avoid a disjunctive dichotomous perspective but to adopt an integrative approach (like the one we propose) which considers variables such as occupation, education and household characteristics. Moreover, unlike most of the studies mentioned above, the focus of our research is not on groups of workers, nor generations or other specific groups, but rather on the change over time of individual households stratified by Permanent Income.

2.4. Crisis and social mobility

Economic crises represent a period of rupture in the evolution of consumption, in the generation of value and its distribution. It is just as important to consider how the generated value is distributed as it is to ask how the destruction of value is distributed among social classes as a consequence of such crisis situations. Therefore, a relevant question to examine is whether socioeconomic crises impact different classes in the same way or, on the contrary, their effects are suffered unequally among them. Several decades ago, Weatherford (1978) found that the working classes are more affected by business cycles. On the other hand, Hill and Martin (2012) state that economic vulnerability is highly stratified according to social class, both before and after the economic recession.

The economic crisis of 2008 was a combination of various factors. In this case, the financial and speculative component together with the increase in private debt were of great importance (Stiglitz, 2009). Of course, this crisis had important effects on the socioeconomic status and on the restructuring of consumption. It should be noted that the importance of private consumption in GDP has a decisive impact on the recovery from the crisis. For Sachweh (2018), the perceived impact of the 2008 crisis is associated with greater support for the responsibility of the welfare state and redistribution, but this is not homogeneous across society and is moderated by the class position of the individual, levels of

¹ This advantage is much more than a mere methodological detail, because socio-demographic data obtained from secondary sources are notoriously plagued by missing values. The latent-variable model we use in this study does not require the imputation of missing values (in fact, the latent-variables model with reflexive indicators is often utilized for the imputation of missing values).

social spending and economic conditions.

In Spain,² the economic crisis of 2008 had important repercussions. The crisis that began in 2008 put an end to dreams of prosperity, with unprecedented losses in employment and GDP and rising inequality, poverty and social exclusion. From 2008 to 2013 employment fell by 3.3 million (16 per cent of total employment); the unemployment rate rose to 26 per cent; GDP fell by 8 per cent; and inequality, as measured by the Gini index, rose from 31.9 to 34.7, among the highest in the EU. Those who most suffered the effects of the crisis were the lower and lower middle class with a reduction in income of around 4%. On the other hand, if upward mobility between classes was slightly dominant before the crisis, after the crisis downward mobility took center stage (Muñoz-de-Bustillo & Antón, 2016). In 2017, the expenditure per household and per person in 2010 had not recovered (Aldás & Solaz, 2019).

More recently, the crisis caused by Covid-19 has also had a strong impact on the behaviour of all socioeconomic strata (Coibion et al., 2020; Chronopoulos et al., 2020). In 2020, Spain experienced a remarkable economic downturn, evidenced by a decrease in its GDP exceeding 10%. This downturn disproportionately affected lower-income worker groups, resulting in a shift towards lower socioeconomic levels (Arce, 2021).

After a review of the literature summarized above, we did not find relevant studies that analyse the effects of economic and pandemic crisis on social mobility over a long time span. The summary above shows many scholars focusing on specific events over a few years around one particular event. In contrast, our goal is to offer a broader perspective spanning 15 years, and to look at the actual mobility of individual households from each year to the next.

In short, the first two decades of the 21st century have been marked by two serious world crises that have had a special impact on Spain. We believe our work is the first that seeks to analyse the real impact of the economic crises of 2008 and the recent Covid-19 crisis on the mobility of individuals between social classes over a long period of 15 years. More specifically, we pose the following research questions:

- Q1: Evolution of Permanent Income - Were the economic consequences of the economic recession and those of the COVID crisis on PI the same? What types of households were most affected by social and economic crises?
- Q2: Evolution of consumption - Were the economic consequences of the economic recession and those of the COVID crisis in consumption the same? What types of households were most affected by social and economic crises?
- Q3: Social mobility - How did the socioeconomic strata evolve during the two crises in Spain? Which socioeconomic strata are more volatile or had more social mobility?
- Q4: Changes in consumption budgets - What was the evolution of the socioeconomic strata in your consumption budget?

3. Methods: the latent-trait measurement model of permanent income

Education and occupation are obvious indicators of Permanent Income, because they allow individuals to accumulate PI in the form of social, financial and physical assets. Current income is also an obvious indicator, for similar reasons. Some authors (Bollen et al., 2007) posit that these are formative indicators of PI, because they build up PI. Bollen et al. (2007) propose a MIMIC model using Current Income, Education and Occupation as formative indicators (because they help build PI) and the access to Physical and Financial Assets as reflective indicators

because they are markers of PI. However, as we argued earlier, there are important caveats preventing the use of them as formative indicators. Moreover, as we also explained earlier, using only reflective indicators allows us to adjust the latent measurement of PI, accounting for the different needs of households in different stages of the family lifecycle.

The indicators we use are listed below, along with a brief justification for their inclusion in our latent measurement model:

- *Education and occupation of the head of the household* – as discussed earlier, these are indicators of the ability to accumulate PI.
- *Current income* – an important, but not exclusive indicator of the ability to accumulate PI.
- *Consumption Budget* – an indicator of the current ability to maintain a certain lifestyle.
- *Completed studies* – an indicator of human capital, which directly affects the ability to produce and accumulate PI.
- *Occupation* – another indicator of human capital.
- *Ownership or Access to Physical assets* – these multiple measures of ownership or access to household assets are reflective indicators of PI.
- *Access to public services and utilities* - these public services and utilities allow the household to maintain a certain lifestyle and are therefore reflective indicators of PI.

Our latent-trait model is a pragmatic reformulation of the MIMIC model, using only reflective indicators to acknowledge the strong collinearity among some indicators and the need to adjust some indicators for household composition, which is not possible with formative indicators. Our Latent-Trait model utilizes binary, continuous or count indicators (Wedel & Kamakura, 2001) after adjusting for household composition, to measure a latent (PI) trait of each household:

$$u_{i(t)j} = \alpha_j + \sum_k \beta_{jk} x_{i(t)k} + \lambda_j \tau_{i(t)} + \varepsilon_{i(t)j} \quad (1)$$

where,

$u_{i(t)j}$ = latent value for household i interviewed (nested) in year t measuring the propensity to respond with the observed value $y_{i(t)j}$ for indicator j . This latent value is linked to the value $y_{i(t)j}$ via a link function (for continuous indicators), logarithm (for counts) or logit (for multichotomous observed indicators) link function.

α_j = intercept for indicator j .

β_{jk} = regression coefficient for indicator j on the k -th covariate (eg, household type).

$x_{i(t)k}$ = background characteristic (regressor) k of household i interviewed in year t .

λ_j = factor loading for indicator j on the latent PI.

$\tau_{i(t)}$ = Latent *Permanent Income* score for household i (nested) in year t .

$\varepsilon_{i(t)j}$ = random error.

In other words, we take into account that an indicator (eg. current income) is not only reflective of the household's PI, but also of the household's composition. For example, two households with the ability to maintain similar standards of living (ie, *Permanent Income*) might show different current incomes, depending on the number of adults and children in the household, because their needs will change according to the household composition.

The model in (1) is similar in attempt to previous attempts to develop a Socioeconomic Index, via principal components analysis (Filmer & Pritchett, 2001; McKenzie, 2003), polychoric PCA (Kolenikov & Angeles, 2009) or IRT (May, 2006). However, the measurement model in (1) is distinct from these previous attempts in two important ways. First, rather than restricting to binary indicators as in these previous efforts, our measurement model is flexible enough to handle continuous, binary and counting indicators. Second, our measurement model accounts for the direct effects of household composition on the indicators, resulting in a latent measure of PI that is adjusted for these observable individual differences.

² To compare macroeconomic information with other OECD countries https://read.oecd-ilibrary.org/economics/main-economic-indicators/volume-2023/issue-4_9481689f-en#page20

To measure PI for households in Spain between 2006 and 2020 we use the INE-EPF that provides a unique opportunity to track socioeconomic mobility over the years because about half of the sample each year participates in the same survey in the next year.

The Encuesta de Presupuestos Familiares (EPF) - Household Budget Survey - is an annual survey carried out by the Spanish National Statistics Institute (INE) among 24,000 households with the aim of obtaining estimates of annual household final consumption expenditure, its distribution among the different goods and services and its evolution in relation to the previous year. The variables analysed are total expenditure and average expenditure per household, per person and per consumption unit, according to different levels of disaggregation and according to different socio-demographic variables, both of the household (size of municipality of residence, composition, income level, etc.) and of the main breadwinner of the household (sex and age, level of education, activity status, occupation, Spanish or foreign nationality, etc.).

The INE collaborates with the other national statistical institutes of the European Union under the coordination of EUROSTAT and is therefore subject to the highest international standards of measurement quality. More information on the INE can be found at the following address (<https://www.ine.es/en/index.htm>).

We consider the following observed indicators of PI for household (Y_{ik}):

- Exact amount of total net monthly income (at 2015 avg. prices) of the household (natural logarithm).
- Total amount of annual monetary spending (at 2015 avg. prices) of the household temporarily elevated (natural logarithm).
- Highest studies completed (categorical in 4 levels – primary, first cycle, second cycle, higher education).
- Occupation (categorical in 5 levels – Management, Professional or Technical, Administrative, Qualified Worker, Non-qualified Worker).
- Socioeconomic situation (reduced classification) of the main breadwinner (categorical in 6 levels – manual labor, non-manual labor, independent worker, unemployed, retired, other active).
- Tenure regime (categorical in 6 levels – owned, own with mortgage, rent, reduced rent, partially paid concession, free concession).
- Number of rooms in the house (ordinal in 8 levels).
- Area of the dwelling in m² (natural logarithm).
- Access to hot water (binary).
- Access to Central Heating (binary).
- Neighbourhood (categorical in 7 levels – urban deluxe, urban high, urban medium, urban low, rural industrial, rural fishing, rural agriculture).

Moreover, we adjust these indicators for household composition, to account for the fact that family needs vary depending on its composition and stage on the family life cycle. We use one variable gathered in the INE-EPF surveys:

- Household Type (Z_i)- categorical in 12 levels:
 - o One male < 65Y
 - o One male 65 +
 - o One female < 65
 - o One female 65 +
 - o Couple empty nest 65 +
 - o Couple empty nest < 65
 - o Other empty-nester households
 - o One adult with one or more dependents
 - o Two adults with one dependent
 - o Two adults with two dependents
 - o Two adults with 3 + dependents

- o Other households with dependents

4. Results: permanent income, social mobility and consumption in 21st century Spain

4.1. Permanent income measurements

We applied the model described in Eq. (1) to the data described above, for the INE-EPF surveys from all sampled households who reported their consumption on two consecutive years from 2006 to 2020. Table 1 presents the parameter estimates for the regression coefficients β_{jk} , adjusting some of the observed indicators for household composition.

These estimates suggest that *Other Empty-Nester Households* and *Other Households with Dependents* have higher monthly incomes, have larger annual consumption budgets, and live in larger houses. Similarly, *Households with a single adult with one or more dependents* and *Households with a single under 65* have lower monthly incomes, spend less on consumption during the year, and live on smaller houses. This information is taken into account to adjust these indicators when obtaining estimates of *Permanent Income* based on these indicators, as shown in Eq. (1).

Table 2 lists the factor loadings for each of the indicators of the latent-trait *Permanent Income*, showing how each observed indicator (and its different values for categorical indicators) relate to the latent-trait. From the estimates listed in Table 2 one can see that a higher PI is associated with having access to central heating, access to hot water, living in a larger house, having higher education, higher monthly income and a larger annual consumption budget. Households with heads who are Professional and Technical (vs. non-qualified) workers and live in Urban-De Luxe or Urban-High (vs. Urban-Low or Rural-Agriculture) have higher (vs. lower) *Permanent Incomes*.

We do not report the intercept estimates α_j for each indicator because these estimates only serve to capture the central trends of the indicator in the sample, and do not have a direct bearing on the measurement of PI.

These *Permanent Income* standardized measurements are summarized over the 2006–2020 period in Fig. 1, which depicts the 95% confidence intervals for the average standardized (across the entire 15-year period) scores in each year.³

Fig. 1 clearly shows that PI was growing until the “Big-Recession” hit Spain in 2008, with its effects lingering until 2014 when the declining trend reverted and grew up to 2019, when the Covid-19 pandemic had a dramatic negative impact on Permanent Income.

To better understand how socioeconomic conditions affected Permanent Income for different types of households in Spain, we ran a Generalized Linear Model for their estimated PI Score, using Household Type (i.e., composition and stage in the family lifecycle), Annual Per-Capita Income in 2010 USD (a proxy for economic conditions in each year) and a Covid dummy variable (for 2020) as predictors. The results from this GLM, reported in Table 3, suggest that PI Scores do not vary considerably with shifts in socioeconomic conditions and across household types; the R-square of the model is relatively low ($R^2 = 0.158$). One consistent statistically significant effect across all household types is the impact of economic conditions (measured by Annual Per-Capita in 2010 USD), showing that PI raises (declines) during expansionary (recessionary) years.

A seemingly surprising result shown in Table 3 is the statistically significant positive effect of the Covid pandemic (Covid dummy=1 in 2020) on PI for several types of households, such as *One male < 65Y*,

³ While a comparison of our social stratification based on latent PI and other schemes based on classic indicators would have been valuable, we elected to leave it for future research. This type of comparison can already be found in the literature, such as the comparison of socio-economic classification schemes by Kamakura and Mazzon (2016).

Table 1
Regression coefficients adjusting indicators for household type.

Predictors	Observed indicator			
	LN_IMPEXAC2015_P (net monthly income)	LN_SUPERF_P (area of the dwelling:m2)	LN_TOTMON2015_P (annual monetary expenditure)	NHABIT_P (room number)
TIPHOGAR_4(Couple empty nest<65)	0.114	-0.046	0.096	-0.143
TIPHOGAR_4(Couple empty nest65 +)	0.155	0.089	0.026	0.260
TIPHOGAR_4(One adult with 1 + dependents)	-0.365	-0.081	-0.137	-0.191
TIPHOGAR_4(One female<65)	-0.471	-0.196	-0.487	-0.481
TIPHOGAR_4(One female65 +)	-0.259	0.023	-0.438	0.105
TIPHOGAR_4(One male<65Y)	-0.340	-0.157	-0.460	-0.452
TIPHOGAR_4(One male65 +)	-0.159	0.005	-0.452	-0.032
TIPHOGAR_4(Other empty-nester hholds)	0.480	0.107	0.424	0.339
TIPHOGAR_4(Other hholds with dependents)	0.421	0.125	0.555	0.368
TIPHOGAR_4(Two adults with 3 + depend.)	0.142	0.110	0.371	0.217
TIPHOGAR_4(Two adults with 1 dependent)	0.122	-0.026	0.204	-0.084
TIPHOGAR_4(Two adults with 2 dependents)	0.161	0.048	0.297	0.094

Table 2
Factor Loading Estimates.

INDICATOR	Loading	INDICATOR	Loading
HOT WATER	1.9872	EMPLOYMENT STATUS	
HEATING	0.8577	unemployed	-1.3519
EDUCATION	1.3125	other inactive	-1.3265
LN(MONTHLY INCOME)	0.4419	retired	-0.6047
LN(HOUSE AREA-M2)	0.1046	manual labor	-0.1115
LN(ANNUAL BUDGET)	0.3863	independent, farmer	0.6016
NUMBER OF ROOMS	0.1835	non-manual labor	2.793
OCCUPATION		URBANIZATION	
non-qualified worker	-1.8924	urban - low	-1.1191
qualified worker, manufacturing	-1.0317	rural - agriculture	-0.6055
administrative, services and commerce	-0.1278	rural fishing	-0.4035
Management (public/private)	0.9997	rural industrial	-0.1163
Professional and technical	2.0522	urban - medium	-0.0694
HOME OWNERSHIP		urban - high	0.9412
reduced rent	-0.7946	urban - de luxe	1.3727
free concession	-0.2517		
rent	0.0433		
owned	0.0885		
partially paid concession	0.1781		
own with mortgage	0.7365		

One Female < 65Y, Couple Empty Nest < 65Y, Other Empty Nest Hholds, One Adult with One or More Dependents, and Other Hholds with Dependents. This positive effect seems counter-intuitive at a first glance but is due to the fact that the Covid pandemic resulted in a drastic reduction in economic activity in 2020 Spain, and therefore, most of its negative impact is already captured by the dramatic drop in GDP per capita used as a proxy for economic conditions. Once again, these results suggest that while the pandemic of 2020 might have negatively affected the households' current income, it had a lesser impact on their Permanent Income, which is also determined by their physical possessions, access to public services and other social and financial resources. Moreover, it should be noted that it is precisely these households (mainly <65Y with none or few dependents) that spend the most on a per capita basis on travel, restaurants, gyms and leisure in general. It is precisely these goods and services and activities that were most reduced during the pandemic.

As a contrast to the relatively small shifts in PI across household types and over time, we estimated the same Generalized Linear Model on the same sample but using the households' Total Consumption

Budget (at 2015 prices) as the depend variable. The results from this model are reported in [Table 4](#).

One can see in [Table 4](#) that the fit of the GLM ($R^2 = 0.739$) is substantially better than the one estimated on PI, indicating that household type, economic conditions and the Covid pandemic explain better the variations of consumption across households and over time than variations in PI. These differences confirm the conceptualization of PI as a more stable construct reflecting the ability of the household to face shifts in socioeconomic conditions from year to year. The GLM estimates reported in [Table 4](#) show that the consumption budget for all types of household decrease (increase) considerably during economic recession (expansion). These estimates also show that the Covid pandemic had a negative impact on consumption in 2020 that went beyond the negative impact already explained by the drop in GDP per capita. This negative pandemic effect particularly impacted households with a single head of household, those with a *Couple empty nest over 65 years old*, households headed by *Two adults with one dependent*, and *Other households with dependents*.

4.2. Year-to-year social mobility

Because half of each annual INE-EPF sample participated in the panel in two consecutive years, we were able to monitor the individual changes in PI for those households. [Fig. 2](#) summarizes these shifts in Permanent Income, showing the average (and 95% confidence intervals) changes from each year to the next.

[Fig. 2](#) confirms the trends observed in [Fig. 1](#), showing that the average household clearly saw a drop in Permanent Income from 2009 to 2010, 2011, 2012 and 2013, with the sharpest drop happening from 2011 to 2012. The average household saw increases in PI from 2013 up to 2019, and the sharpest drop from 2019 to 2020.

An interesting phenomenon observed in the annual shifts in PI in the 2006–2020 period is that gains (losses) tended to be larger among the household with lowest (highest) PI. The linear correlation between changes in PI from one year to the next and the starting value across all households in the sample was -0.21 . These results suggest that upward mobility might be more prevalent among the lower strata and downward mobility more likely among the top strata.

We stratified the entire sample across the 15 years into 6 strata, based on our Permanent Income measurements across the entire sample of 15 years, into class:

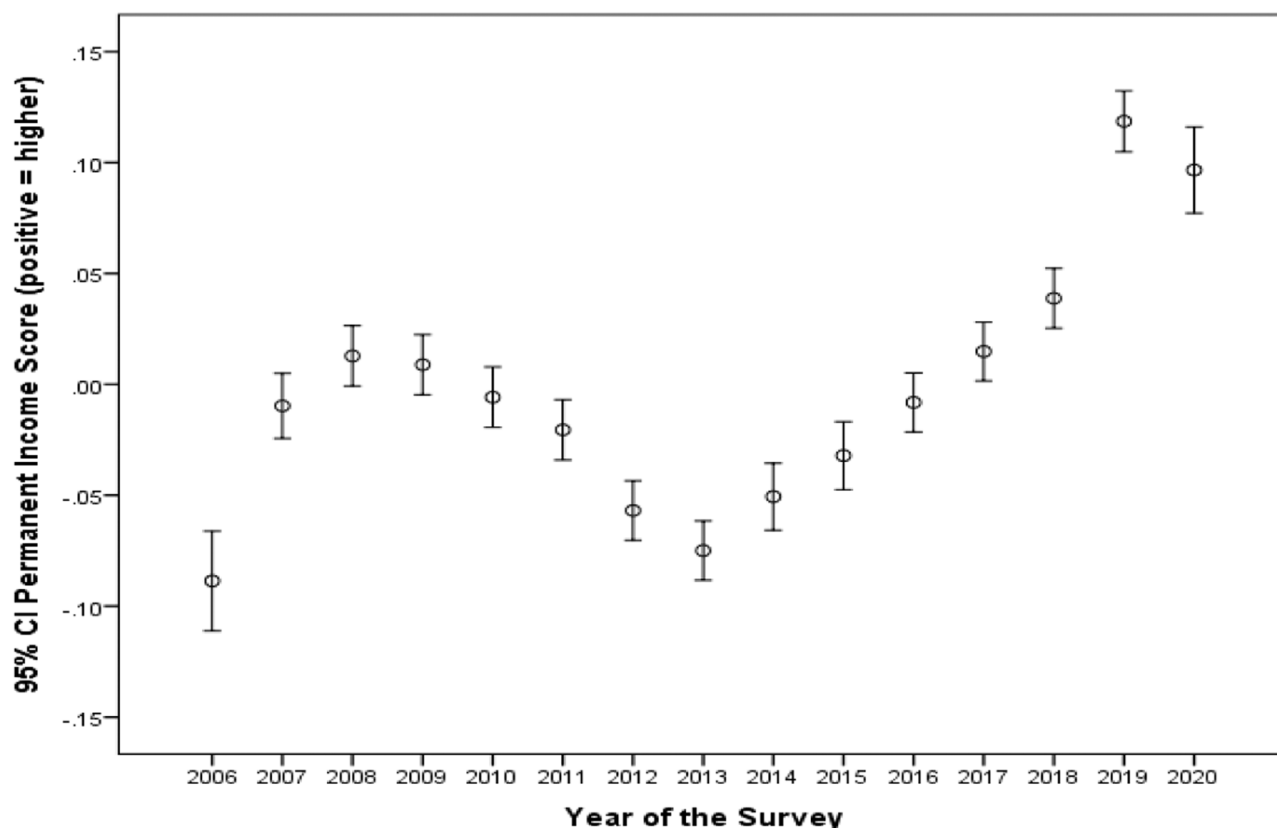


Fig. 1. Permanent-Income scores from 2006 to 2020.

- A (Permanent Income score in the top decile).
- B (top second and third deciles).
- C1 (top fourth and fifth deciles).
- C2 (bottom fourth and fifth deciles).
- D (bottom second and third deciles).
- E bottom decile).

With this stratification, we were able to tabulate the movements among these six strata to understand how households moved across the strata over time.

This mobility over time can be seen more clearly in Fig. 3, showing the percentage of households in each class from 2006 to 2020. Fig. 3 suggests that the largest changes over time were observed close to the two extremes. The second wealthiest class (Class B) saw the largest growth, while the second poorest class (Class D) saw the largest decrease in size from 2006 to 2020. Overall, after the mobility discussed above, we can conclude that there was an upward movement from Classes E and D towards Classes B and C. The fourth (pandemic) period (2019 to 2020) shows dramatic downward mobility, with the lowest class E growing by 15% and the highest-class A shrinking by 9%.

By way of summary, the share of the three richest strata increases during the first period (growth), decreases during the great recession triggered in 2008, and increases again considerably during the recovery period, reaching the highest percentage of the series just at the end of said period (2019). The shares of the less wealthy classes have an opposite behaviour. This exercise provides some evidence of social mobility in Spain during the 2006–2020 period (Table 5).

Period 2006 to 2008, when Spain was still experiencing the boom due to the real estate bubble prior to the banking crisis. The annual transitions among the social strata during this period are shown in Panel 5.a, where we observe 2425 movements downward (upper diagonal cells), against 3006 movements upward (lower-diagonal cells), while 10032 households remained in the same strata during the period.

Therefore, of all 5431 observed transitions between 2006 and 2008, 55% reflected upward mobility.

Period: “big-recession” from 2008 to 2013 (Panel 5.b), where we observed 7758 movements downward (upper diagonal), against 6946 movements upward (lower-diagonal), with 29417 households remaining in the same strata. Therefore, of the 14704 transitions observed, a small majority (53%) reflected downward mobility.

Period: 2013 to 2019 (Panel 5.c), reflects the recovery from the “Big-Recession”. During this period, we observe 5189 transitions downward, against 6575 transitions upward, so that out of 11764 transitions, 56% reflect upward mobility.

Final period: 2019 to 2020, captures the effects of the Covid-19 pandemic (Panel 5.d). Out of the 2329 movements among the socioeconomic strata, 61% were downwards, the most extreme mobility we observed in the entire 2006–2020 period.

The mobility discussed above is predicated on how we defined the socioeconomic strata, over the entire sampling period of 15 years, indicating the standing of each household at a given year, relative to the entire sample over the 15-year period. Transitions among the socioeconomic classes are more meaningful among classes B, C1, C2 and D, because the two classes in the extremes (A and E) are about half in size and also can observe movements only in one direction.

Looking at the growth rate by each socioeconomic class within each of the four major periods, one can see that economic and social shifts had distinctive impacts across the classes. The first (expansory) period (2006–2008) shows a dramatic upward mobility in the lowest class E, which shrunk by 11% during the period, while classes C1 and A grew by 5% and 3% respectively.

In the second (recessionary) period (2008 to 2013) we see the reverse from the first period, with class A shrinking by 5%. During the third (recovery) period (2013 to 2019) we again see substantial upward mobility with consistent growth in the upper classes (A to C2) and decline in the lower classes (E and D).

Table 3

Estimates for a Generalized Linear Model explaining PI Scores with Household Type and Socioeconomic conditions ($R^2 = 0.158$).

Predictors and Interactions	Estimate	p-value
One male < 65Y	-0.700	0.000
One male65 +	-1.656	0.000
One female- < 65	0.221	0.262
One female65 +	-1.299	0.000
Couple empty nest65 +	-1.165	0.000
Couple empty nest < 65	-0.667	0.000
Other empty-nesterhhholds	-1.389	0.000
One adult with one or more dependents	-0.654	0.004
Two adults with one-dependent	-0.893	0.000
Two adults with two-dependents	-0.755	0.000
Two adults with 3 + dependents	-0.060	0.808
Other hhholds with dependents	-2.335	0.000
One male < 65Y	GDP per capita 0.027	0.000
One male65 +	0.035	0.000
One female < 65	0.001	0.000
One female65 +	0.017	0.000
Couple empty nest65 +	0.023	0.000
Couple empty nest < 65	0.028	0.000
Other empty-nester hhholds	0.037	0.000
One adult with one or more dependents	0.029	0.000
Two adults with one-dependent	0.039	0.000
Two adults with two-dependents	0.038	0.000
Two adults with 3 + dependents	0.010	0.000
Other hhholds with dependents	0.071	0.000
One male < 65Y	Covid-19 0.045	0.001
One male65 +	0.269	0.695
One female < 65	0.015	0.000
One female65 +	0.296	0.327
Couple empty nest65 +	0.254	0.777
Couple empty nest < 65	0.105	0.008
Other empty-nester hhholds	0.125	0.023
One adult with one or more dependents	-0.012	0.000
Two adults with one-dependent	0.139	0.050
Two adults with two-dependents	0.184	0.263
Two adults with 3 + dependents	0.183	0.442
Other hhholds with dependents	0.240	0.000

To better understand how PI has shifted between consecutive years during the four major periods (expansionary, recessionary, recovery and pandemic) across the different types of households, we estimated a Generalized Linear Model using the shifts in PI from one year to the next as the dependent variable. As predictors, we used the household types as a fixed factor, dummy variables reflecting the four major periods, and the initial (first of the two consecutive years) Permanent Income for each household. The results from this GLM are reported in Table 6a and b.

The overall fit for this Generalized Linear Model was poor ($R^2 = 0.054$), once again confirming that Permanent Income is relatively stable over time, as most households are able to rely on accumulated wealth and use of private and public resources to weather economic “storms”. As we had seen earlier (Fig. 3), the estimates in Table 6a show a statistically significant negative effect of the current Permanent Income Score on the shift in PI for the next year, indicating that Permanent Income decreases or increases at a lower rate for households with higher Permanent Income. The interactions between household type and Covid indicates that Permanent Income observed a negative shift during the pandemic for most household types with the only exception for those headed by *One male < 65Y*.

The only household types showing a statistically significant improvement in PI during the Economic Expansion and Economic Recovery periods were *Couple Empty Nest < 65* and *Other Households with Dependents* during expansion (Table 6a) and *One Male < 65Y* during recovery (Table 6b).

In contrast, most household types experienced a statistically significant reduction in their Permanent Income during the Economic Recession period, with the exception of some of the smallest households (*One male < 65Y*, *One male 65 +* and *One Female 65 +*).

Table 4

Estimates for a Generalized Linear Model explaining Total Consumption Budget (at 2015 prices) with Household Type and Socioeconomic conditions ($R^2 = 0.739$).

Predictors and interactions	Estimate	p-value
One male < 65Y	-1471.1	0.662
One male65 +	-2339.8	0.633
One female < 65	4628.2	0.196
One female65 +	5592.2	0.062
Couple empty nest65 +	8116.9	0.000
Couple empty nest < 65	3166.7	0.108
Other empty-nester hhholds	-3520.1	0.063
One adult with one or more dependents	6686.0	0.109
Two adults with one-dependent	-3497.8	0.088
Two adults with two-dependents	-1572.3	0.409
Two adults with 3 + dependents	8970.8	0.044
Other hhholds with dependents	-23709.7	0.000
One male < 65Y	GDP per capita 0.522	0.000
One male65 +	0.450	0.000
One female < 65	0.319	0.000
One female65 +	0.153	0.000
Couple empty nest65 +	0.330	0.000
Couple empty nest < 65	0.694	0.000
Other empty-nester hhholds	1.050	0.000
One adult with one or more dependents	0.436	0.000
Two adults with one-dependent	1.015	0.000
Two adults with two-dependents	1.081	0.000
Two adults with 3 + dependents	0.809	0.000
Other hhholds with dependents	1.869	0.000
One male < 65Y	Covid-19 -1666.4	0.008
One male65 +	496.1	0.000
One female < 65	-1028.0	0.002
One female65 +	-8.2	0.000
Couple empty nest65 +	-1009.9	0.000
Couple empty nest < 65	-3493.2	0.243
Other empty-nesterhhholds	-4363.9	0.827
One adult with one or more dependents	-2540.6	0.099
Two adults with one-dependent	-2607.6	0.036
Two adults with two-dependents	-2907.4	0.067
Two adults with 3 + dependents	-2909.3	0.217
Other hhholds with dependents	-4564.1	0.000

Comparing the estimates for the Covid and Economic Recession periods, we can see that both resulted in similar reductions in PI, to the same types of households, with only a few exceptions, for smaller single-member or empty-nest households.

4.3. Consumption across socioeconomic classes over time

A temporal analysis of the average annual consumption budget (at 2015 prices) across socioeconomic strata leads to the following conclusions (see Fig. 4):

- The inequalities in living standards (i.e., consumption) across classes have reduced considerably during the “Big Recession”. In 2006, the top class (A) consumed about 5 times more on average than bottom class E. In 2020 this ratio went down to around 4.
- This reduction in consumption inequalities happened mostly due to the drop in consumption in the upper classes during the “Big Recession”. The largest drops in consumption during this period were observed in Classes B, C1 and A.
- The lower strata saw a smaller drop in consumption during the recessionary period, probably because they (in particular class E) were already living near subsistence levels with less room for “tightening their belts”. These lower strata also had more access to governmental assistance during recessionary years. In terms of consumption, the Covid-19 pandemic acted as a social “equalizer”, dramatically reducing consumption inequality across socioeconomic strata. One again, this reduction in consumption inequality might be due to the fact that upper strata have more leeway in reducing their

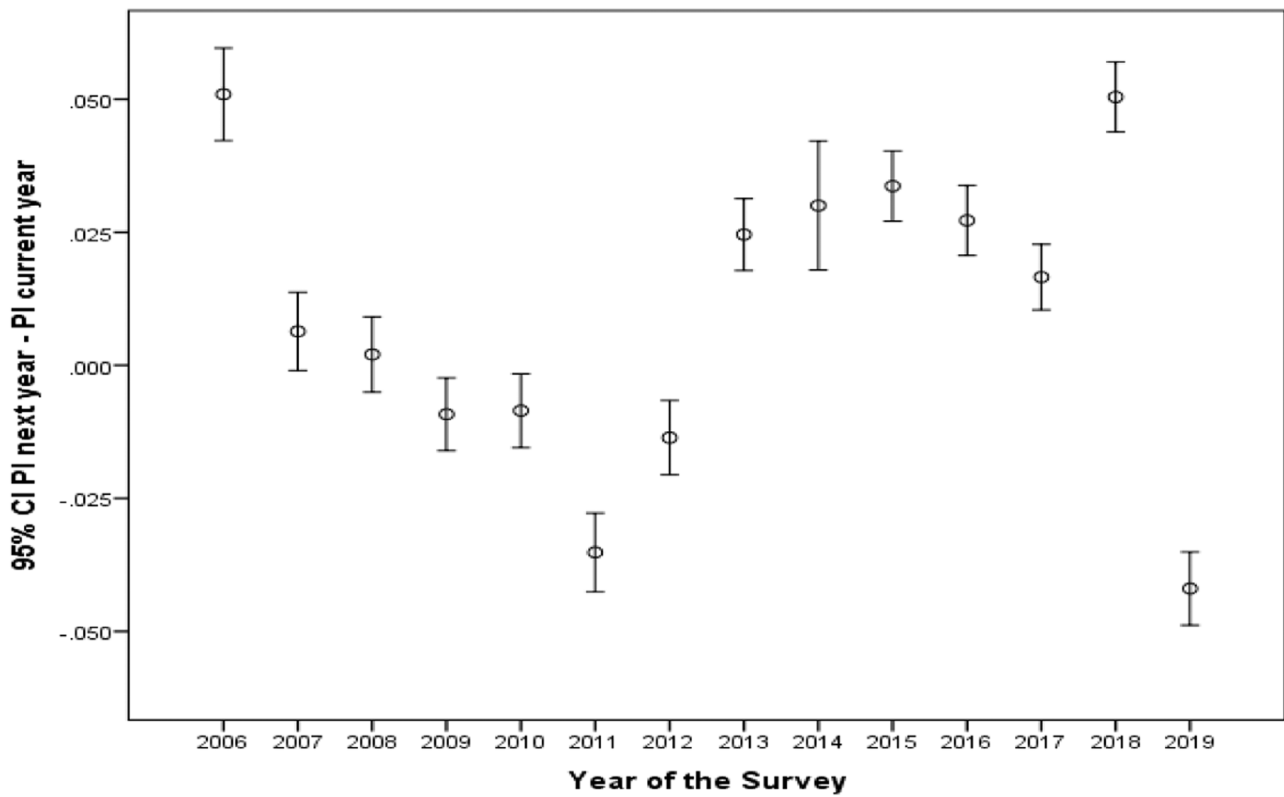


Fig. 2. Changes in Permanent Income from one year to the next.

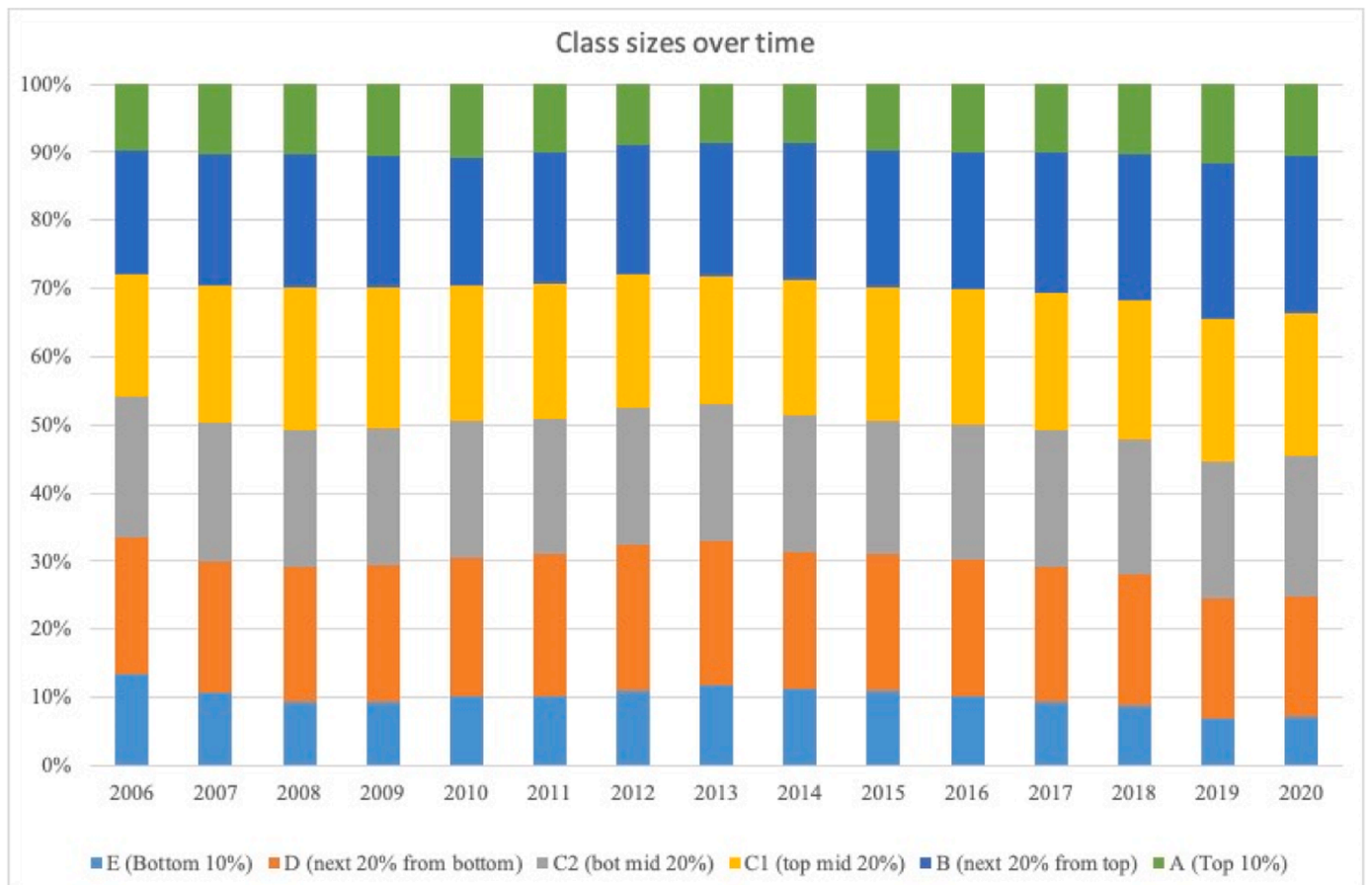


Fig. 3. How class sizes changed from 2006 to 2020.

Table 5
Transition among strata between consecutive years.

5.a - 2006 to 2008								
Socio-Econ Class	A	B	C1	C2	D	E	Total	% Growth
A (Top 10%)	1235	285	17	2	1	0	1540	3.0
B (next 20% from top)	325	2124	443	56	9	2	2959	0.4
C1 (top mid-20%)	22	474	1879	543	72	6	2996	5.3
C2 (bot mid-20%)	2	75	722	1738	607	30	3174	-2.5
D (next 20% from bottom)	2	11	82	705	1870	352	3022	1.9
E (Bottom 10%)	0	1	12	52	521	1186	1772	-11.1
TOTAL	1586	2970	3155	3096	3080	1576	15463	
5.b - 2008 to 2013								
Socio-Econ Class	A	B	C1	C2	D	E	Total	% Growth
A (Top 10%)	3461	982	55	6	0	0	4504	-5.0
B (next 20% from top)	765	6040	1387	190	36	3	8421	-0.8
C1 (top mid-20%)	51	1158	5580	1710	226	18	8743	0.7
C2 (bot mid-20%)	4	148	1576	5162	1822	146	8858	-0.1
D (next 20% from bottom)	0	25	194	1687	5973	1177	9056	2.5
E (Bottom 10%)	0	1	16	97	1224	3201	4539	0.1
TOTAL	4281	8354	8808	8852	9281	4545	44121	
5.c - 2013 to 2019								
Socio-Econ Class	A	B	C1	C2	D	E	Total	% Growth
A (Top 10%)	3075	684	25	2	1	0	3787	2.0
B (next 20% from top)	750	6204	880	101	25	3	7963	1.6
C1 (top mid-20%)	32	1057	5415	1154	144	12	7814	2.5
C2 (bot mid-20%)	4	105	1451	4956	1220	82	7818	1.4
D (next 20% from bottom)	2	33	213	1607	5286	856	7997	-1.8
E (Bottom 10%)	0	4	27	110	1180	2946	4267	-8.6
TOTAL	3863	8087	8011	7930	7856	3899	39646	
5.d - 2019 to 2020								
Socio-Econ Class	A	B	C1	C2	D	E	Total	% Growth
A (Top 10%)	673	214	7	1	0	0	895	-8.7
B (next 20% from top)	138	1381	259	32	5	1	1816	-1.8
C1 (top mid-20%)	6	158	1115	362	45	7	1693	-3.9
C2 (bot mid-20%)	0	23	214	1002	283	20	1542	4.5
D (next 20% from bottom)	0	7	30	203	897	180	1317	2.6
E (Bottom 10%)	0	0	2	11	121	358	492	15.0
TOTAL	817	1783	1627	1611	1351	566	7755	

consumption budget by reducing the quantity and quality of their household consumption. Households in the lower strata are also more likely to qualify for government socio-economic assistance during the pandemic.

5. Discussion and conclusions

During the 21st century, the world, in general, and Spain, in particular, have faced two socioeconomic events of great relevance: the great recession of 2008 and the COVID pandemic in 2020. Our estimates of Permanent Income track well these two socio-economic shocks, growing in the first years of the analysed period until the arrival of the great crisis of 2008 when they began to decline for several years. The economic recovery, which began in 2014 was abruptly cut short by the 2020 pandemic, showing a similar path for the average Permanent Income (see Fig. 1). Gains (losses) in Permanent Income are greater in households with lower (higher) PI, with the greatest transformations occurring in times of crisis, particularly in the crisis caused by the pandemic in 2020.

Regarding the research questions we posited earlier in this paper, with respect to Q1, the economic consequences of the economic recession and the COVID crisis were not the same across households, as stated Miguel and Mobarak (2022) or Blundell et al. (2022). Changes in PI have occurred differently and with different intensity depending on household composition and stage of the family lifecycle. Among the households least affected by the “Big Recession” and the Pandemic were smaller ones, with a single member, or empty-nest couples (see Table 6).

The consequences of COVID were more drastic and widespread than those of the “Big Recession” of 2008. One particularly striking finding is that smaller households (with one member or empty nested couples)

with heads under 65 years saw their Permanent Income increase during the COVID pandemic in 2020. This may be due to the fact that these households consume more goods and services (on a per-capita basis) that were particularly affected by the lockdowns imposed in 2020 (e.g., eating out, clothing, footwear, vacations, entertainment, among others) and this translates into lower overall per-capita consumption and hence higher Permanent Income.

As for Q2, variations in consumption are better explained than those in Permanent Income. Consumption is cyclical, increasing (decreasing) with the increase (decrease) of GDP economic activity, and is therefore better explained by socioeconomic fluctuations. In contrast, the concept of Permanent Income relates to the social and economic capital accumulated by the household over time that allows it to better face temporary shocks in current income, hence leading to less volatile Permanent Income assessments over time.

The COVID pandemic has had a generalized negative impact on consumption clearly in small households (one <65, couple empty nest 65+, two adults with one dependent) due to the aforementioned reason, as well as other *hholds with dependents*.

Social mobility (Q3) was upward in periods of growth or recovery (2006–08 and 2013–19), with a large decline in the proportion of households in the lowest stratum (E). In contrast, periods of crisis (2009–2013 and 2020) showed downward mobility, with the largest drop among the upper strata (A and B), consistent with previous research (Muñoz-de-Bustillo & Antón, 2016; Sachweh, 2018)). In a single year, the pandemic has caused the greatest downward social mobility of the entire 15-year sampling period, especially affecting the three upper strata (A, B and C1).

The extreme strata were those with the greatest changes in relative size from 2006 to 2020. The lowest stratum E underwent the greatest

Table 6a

Estimates for a Generalized Linear Model explaining year-to-year shifts in PI (R2 =0.054).

PREDICTOR	INTERACTION	Beta	Sig.
One male< 65Y		-0.007	0.69
One male65 +		-0.014	0.59
One female< 65		0.042	0.02
One female65 +		-0.028	0.06
Couple empty nest 65 +		-0.007	0.43
Couple empty nest< 65		0.027	0.00
Other empty-nester hhholds		0.031	0.00
One adult with one or more dependents		0.010	0.66
Two adults with one dependent		0.052	0.00
Two adults with two dependents		0.071	0.00
Two adults with 3 + dependents		0.065	0.00
Other hhholds with dependents		0.056	0.00
Permanent Income Score		-0.083	0.00
	<i>Covid</i>		
One male< 65Y		-0.008	0.73
One male 65 +		-0.080	0.02
One female< 65		-0.065	0.01
One female 65 +		-0.041	0.05
Couple empty nest 65 +		-0.040	0.00
Couple empty nest< 65		-0.041	0.00
Other empty-nester hhholds		-0.088	0.00
One adult with one or more dependents		-0.065	0.03
Two adults with one dependent		-0.082	0.00
Two adults with two dependents		-0.070	0.00
Two adults with 3 + dependents		-0.072	0.02
Other hhholds with dependents		-0.046	0.02
	<i>Economic expansion</i>		
One male< 65Y		0.011	0.56
One male 65 +		0.028	0.25
One female< 65		0.009	0.62
One female 65 +		0.027	0.08
Couple empty nest 65 +		0.004	0.65
Couple empty nest< 65		0.025	0.01
Other empty-nester hhholds		0.013	0.11
One adult with one or more dependents		0.003	0.89
Two adults with one dependent		0.017	0.08
Two adults with two dependents		0.014	0.11
Two adults with 3 + dependents		0.024	0.25
Other hhholds with dependents		0.031	0.01

change in three of the four periods we analysed, showing the largest growth during the Covid pandemic (2020) and the largest reduction in size during the Expansion (2006–2008) and Recovery (2013–2019) periods. Stratum A saw the greatest shrinkage during the Covid pandemic.

Clearly the COVID effect has been greater for changes in permanent income and for social mobility. Moreover, for most households, changes in permanent income are more significant in recession than in economic growth. This later result suggests that the benefits of economic expansion and recovery were more evenly spread across household types than the negative effects of the recession.

Regarding research question Q4, our findings show that, at the beginning, the richest socioeconomic stratum consumed 5 times more, on average, than the poorest. This inequality has been reduced over time by the greater drop in consumption by the richest strata during socio-economic crisis, particularly during the pandemic.

6. Implications

Some theoretical and practical implications derive from the results of this work. In the first place, we highlighted the importance of measuring socioeconomic status through a latent construct that overcomes the limitations of direct observations traditionally used such as current income, education, occupation or other more subjective indicators such as esteem. Our proposed Latent-Trait measurement model of Permanent Income, developed in line with the recommendations of [Friedman \(1957\)](#), accurately reflects the socioeconomic assets accumulated by citizens throughout their lives and their level of wealth and current well-being, regardless of the specific changes in the economic environment that can affect the objective indicators. Our measurement model also takes into account that needs vary depending on household size and stage in the family lifecycle, so that the same observed indicators will lead to different standards of living, depending on household profile. Therefore, as far as we know, this is the first attempt to objectively measure Permanent Income in Spain, validating said proposal with a large sample of 15 years of data on household composition and resources.

This measurement methodology is of interest to public administrations and economic authorities when it comes to classifying citizens into

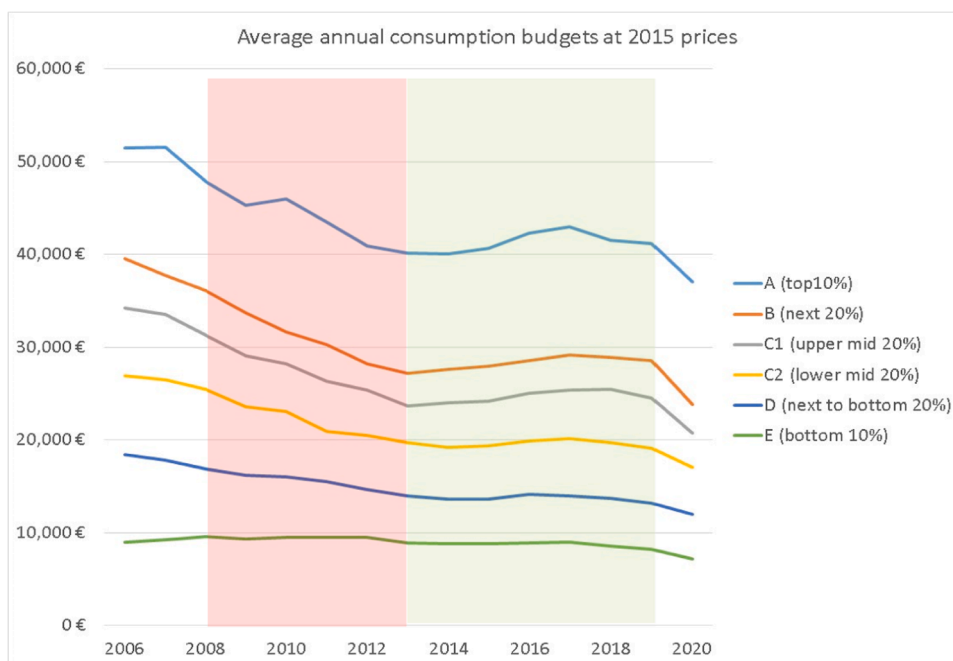


Fig. 4. Average Annual Consumption Budgets at 2015 prices by Socioeconomic Class.

Table 6b

Estimates for a Generalized Linear Model explaining year-to-year shifts in PI (R² = 0.054).

PREDICTOR	INTERACTION	Beta	Sig.
<i>Economic recession</i>			
One male < 65Y		-0.028	0.08
One male 65 +		-0.029	0.19
One female < 65		-0.052	0.00
One female 65 +		-0.012	0.38
Couple empty nest 65 +		-0.015	0.05
Couple empty nest < 65		-0.035	0.00
Other empty-nester hhholds		-0.053	0.00
One adult with one or more dependents		-0.055	0.00
Two adults with one dependent		-0.058	0.00
Two adults with two dependents		-0.060	0.00
Two adults with 3 + dependents		-0.066	0.00
Other hhholds with dependents		-0.068	0.00
<i>Economic recovery</i>			
One male < 65Y		0.041	0.02
One male 65 +		-0.005	0.84
One female < 65		-0.012	0.48
One female 65 +		0.001	0.95
Couple empty nest 65 +		-0.001	0.95
Couple empty nest < 65		0.009	0.35
Other empty-nester hhholds		-0.002	0.78
One adult with one or more dependents		0.009	0.67
Two adults with one dependent		-0.012	0.19
Two adults with two dependents		-0.006	0.49
Two adults with 3 + dependents		-0.036	0.08
Other hhholds with dependents		-0.004	0.70

socioeconomic strata, beyond the traditional attempts to stratify society into social classes. In this sense, our work contributes in terms of stratification of the Spanish population into six socioeconomic strata according to Permanent Income: very high and high socioeconomic strata (A and B), middle (C1 and C2), low and very low (D and E) strata.

Perhaps the most interesting contribution of this work, and from which, in our opinion, important implications for political managers may be derived, is the quantification of the effects of the two socioeconomic crises occurring in this century. This quantification may contribute to understanding the most or least successful of the political decisions that were taken during these events on the socioeconomic well-being of citizens in terms of socioeconomic mobility and consumption. As we documented in our study, the downward socioeconomic mobility and the drop in consumption turned out to be much more drastic during the Covid crisis, than during the “Big Recession”, albeit with less inequality across household types. The adjustments and economic policies during the “Big Recession” crisis were much harder and affected the well-being of citizens to a greater extent than the policies adopted during the pandemic crisis, which were less oriented towards government spending and investment cuts and more on social policies towards maintaining employment and consumption. This is reflected in a lower inequality between strata according to our findings.

However, we must take into account an important limitation of this work: the data series available to us allows us to examine the immediate and more delayed effects of the 2008 crisis. In contrast, we only have data for one year to examine the effects of the crisis of the pandemic of Covid-19. Future research should corroborate our findings and their evolution over time with EPF-INE data several years after the pandemic.

In the current study, we looked at consumption, but only at the total amount spent by each household, without breaking it into product and service categories, which would provide a much richer understanding of the lifestyles and living standards across socioeconomic strata and over time. This breakdown is available from the EPF-INE panel but will require an entire new study to analyse and report. We leave this for future research.

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CRedit authorship contribution statement

Salvador Del Barrio-García: Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Conceptualization. **Wagner A. Kamakura:** Writing – original draft, Visualization, Validation, Supervision, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Teodoro Luque Martínez:** Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization.

Declaration of Competing Interest

The authors declare that there are no Conflicts of interests/Competing interests in accordance with the Instructions for Authors.

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